The morning reports of September 8 showed the storm to be central southeast of St. Kitts and a maximum wind velocity of 30 miles was reported, the only high wind.

The following was received from Washington at 11:59 a. m.:

Hurricane signal has been ordered at St. Kitts; storm central east of that island apparently moving northwest.

Advisory messages had been sent direct to all stations from Washington, and the usual disposition of such messages was made locally. The morning reports of September 9 showed the storm center to the northeast of Porto Rico, and conditions indicated the passing of the hurricane to the north-northwest. By the morning of the 10th the hurricane had progressed so far northward that all West Indian stations were beyond its influence.—*W. B. Stockman, Forecast Official.*

AREAS OF HIGH AND LOW PRESSURE.

During September there were nine highs and ten lows sufficiently well defined to have their paths traced on Charts I and II.

The accompanying table presents the principal points regarding the first and last appearance, and velocity of these conditions, and the following statement is added:

Movements of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocities.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long W.	Length.	Duration.	Daily.	Hourly.
High areas.		°	°		°	°	*Miles.*	*Days.*	*Miles.*	*Miles.*
I	1, a. m.	47	129	5, p. m.	45	59	3,300	4.5	733	30.5
II	3, a. m.	35	128	11, a. m.	47	59	4,680	8.0	585	24.4
III	4, p. m.	54	117	8, p m.	32	79	3,240	4.0	810	33.7
IV	8, p. m.	48	120	18, a. m.	41	68	3,440	9.5	362	15.1
V	11, p. m.	40	126	17, p. m.	34	101	3,900	6.0	650	27.1
VI	17, a. m.	51	116	23, a. m.	36	83	3,780	6.0	630	26.3
VII	20, a. m.	49	113	25. a. m.	47	55	2,820	5.0	564	23.5
VIII	20, p. m.	47	127	29, p. m.	46	57	4,440	9.0	493	20.5
IX	26, p. m.	42	126	*5, a. m.	38	73	4,260	8.5	251	10 4
Total							33,860	60.5	5,078	211.5
Mean of 9 paths							3,762		564	23.5
Mean of 60.5 days									560	23.3
Low areas.										
I	†30, p m.	45	122	5, a. m.	48	51	3,540	5.5	644	26.8
II	2, p. m.	44	119	7, a. m.	48	55	3,840	4.5	853	34.5
III	4, a. m.	48	128	9, a. m.	49	53	3,480	5.0	696	29.0
IV	8, p. m.	50	114	12, a. m.	41	70	2,520	3.5	720	30.0
V	10, p. m.	54	106	14, p. m.	46	57	3,660	4.0	915	38.1
VI	11, p. m.	47	121	14, p. m.	40	103	1,440	3.0	480	20.0
VII	14, p. m.	53	112	17, p. m.	48	75	2,040	3.0	680	28.3
VIII	17, p. m.	27	84	21. p. m.	51	64	2,340	4.0	585	24.4
IX	21, p. m.	53	116	27, a. m.	48	70	3,480	5.5	633	26.4
X	25, p. m.	55	116	30, p. m.	50	66	2,460	5.0	492	20.5
Total							28,800	43.0	6,698	279.0
Mean of 10 paths							2,880		670	27.9
Mean of 43.0 days									670	27.9

*October. †August.

Highs.—Numbers II, V, and IX were first noted on the middle Pacific coast; Nos. I, IV, and VIII, on, or near the north Pacific coast, and the remaining three to the north of Montana. The general tendency of the paths is toward the east, or south of east. No. V was last seen in the panhandle of Texas; No. VI in east Tennessee; No. III off the south Atlantic coast; Nos. IV and IX off the middle Atlantic coast; the remaining highs disappeared near Newfoundland. An interesting fact connected with these highs is the very large number of days covered by them, 60.5. This is the largest number of days noted in the past three years.

Lows.—Of the lows, Nos. I, II, III, and VI were the first noted on or near the north Pacific coast; No. VIII was first seen off the west coast of Florida; the remaining storms moved east or northeast, and all were last seen over Newfoundland or near the mouth of the St. Lawrence, except No. IV, which disappeared off the middle Atlantic coast. The month was remarkable for its light winds. On the p. m. of 11th, as storm No. V approached the lower lakes, New York reported an easterly gust of 60 miles an hour. On the afternoon of 24th, while storm No. IX was over Lake Huron, Cleveland reported a southeast wind of 40 miles, and the next morning Buffalo had a south wind of 48 miles. On the morning of 28th, as storm No. X approached the upper lakes, Chicago reported a west wind of 48 miles; as the same storm passed down the St. Lawrence Valley on the evening of 30th, it caused a northwest wind of 42 miles at New York City.—*H. A. Hazen, Professor.*

RIVERS AND FLOODS.

The low water season is at hand, and the river stages as a rule steadily declined throughout the month. There was a temporary sharp rise in the rivers of the South Atlantic States on the 11th and 12th, due to heavy local rains, but nothing of interest transpired.

The highest and lowest water, mean stage, and monthly range at 123 river stations are given in the accompanying table. Hydrographs for typical points on seven principal rivers are shown on Chart V. The stations selected for charting are: Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.—*H. C. Frankenfield, Forecast Official.*

Heights of rivers referred to zeros of gages, September, 1899.

Stations.	Distance to mouth of river.	Danger line on gage.	Highest water.		Lowest water.		Mean stage.	Monthly range.
			Height.	Date.	Height.	Date.		
Mississippi River.	*Miles.*	*Feet.*	*Feet.*		*Feet.*		*Feet.*	*Feet.*
St. Paul, Minn	1,954	14	7.5	1	4.5	30	5.6	3.0
Reads Landing, Minn	1,884	12	4.7	2,3	2.2	30	3.5	2.5
La Crosse, Wis	1,819	12						
North McGregor, Iowa	1,759	18	4.9	6-8	3.1	30	4.2	1.8
Dubuque, Iowa	1,699	15	4.6	7-9	3.1	30	4.0	1.5
Leclaire, Iowa	1,609	10	2.6	10-12	1.7	1	2.3	0.9
Davenport, Iowa	1,593	15	3.7	10,11	2.6	1	3.3	1.1
Muscatine, Iowa	1,562	16	4.7	10,11	3.2	1	4.2	1.5
Galland, Iowa	1,472	8	1.8	11-15	1.1	1	1.6	0.7
Keokuk, Iowa	1,463	14	2.8	12,13	1.5	1,2	2.3	1.3
Hannibal, Mo	1,402	17	3.8	{13-16 / 18,19}	2.4	1,2	3.4	1.4
Grafton, Ill	1,306	23	4.8	20	3.2	1,2	4.1	1.6
St. Louis, Mo	1,264	30	7.5	1,2	5.0	29,30	6.3	2.5
Chester, Ill	1,189	30	5.3	1-3	3.2	30	4.3	2.1
Memphis, Tenn	843	33	5.5	1	2.2	30	3.3	3.3
Helena, Ark	767	42	9.2	1	4.6	30	6.0	4.6
Arkansas City, Ark	635	42	10.0	1	4.0	23-26,30	5.6	6.0
Greenville, Miss	595	42	8.5	1	3.7	30	5.2	4.8
Vicksburg, Miss	474	45	9.6	1	2.3	30	4.5	7.3
New Orleans, La	108	16	4.6	1	3.3	21,29,30	3.9	1.3
Missouri River.								
Bismarck, N. Dak	1,309	14	3.7	1	2.0	28-30	2.8	1.7
Pierre, S. Dak	1,114	14	4.3	1	2.5	28	3.3	1.8
Sioux City, Iowa	784	19	7.9	2	5.0	29	6.0	2.9
Omaha, Nebr	669	18	8.4	1,3	6.7	30	7.6	1.7
Plattsmouth, Nebr	641							
St. Joseph, Mo	481	10	4.3	1	1.2	30	2.5	3.1
Kansas City, Mo	388	21	10.0	1	5.9	30	7.6	4.1
Boonville, Mo	199	20	9.3	1	5.7	30	7.0	3.6
Hermann, Mo	103	24	8.6	1	5.3	30	6.7	3.3
Illinois River.								
Peoria, Ill	135	14	4.3	18,19	3.7	1-3,5	4.0	0.6
Youghiogheny River.								
Confluence, Pa	59	10	4.4	12	0.4	7	1.3	4.0
West Newton, Pa	15	23	4.5	12	0.1	6-8	0.8	4.4
Allegheny River.								
Warren, Pa	177	7	0.3	2	0.0	7-30	0.0	0.3
Oil City, Pa	123	13	1.4	3	— 0.1	1	0.3	1.5
Parkers Landing, Pa	73	20	1.3	3	0.0	1	0.7	1.3
Monongahela River.								
Weston, W. Va	161	18	— 0.6	{12, 13 / 21, 22}	— 1.6	10	—1.1	1.0
Fairmont, W. Va	119	25	0.8	13, 14	0.3	1-7	0.5	0.6
Greensboro, Pa	81	18	9.2	11	6.4	1-3,6-8	6.8	2.8
Lock No. 4, Pa	40	28	11.0	12	6.1	1,21,22	7.7	4.9